

## Abstract

Food abundance in the environment influences nestling growth and survival in birds. In urbanized areas, nestling survival is likely to decrease due to low arthropod abundance. We investigated the fledgling success rate of the Taiwan Barbet (*Megalaima nuchalis*) and the causes of fledgling failure in an urban green space and a natural habitat. In the two sites, arthropod abundance, arthropod provision rates by parents, nestling growth states were recorded. The results show the less arthropod abundance, the lower arthropod provision rate, slower nestling growth and more premature death of nestlings in the urban green space. Furthermore, the clutch with nestlings of distinct body size differences had lower arthropod food provision rate and more premature deaths. The results indicate that arthropods are a vital food resource for nestling growth of Taiwan Barbet. Insufficient arthropod abundance in the habitat will likely cause slow growth and premature death of nestlings. To enhance arthropod abundance in urban green space, appropriate habitat management is needed, and any damage to the arthropod community and its habitat should be prevented.

**關鍵字：**五色鳥、餵食頻率、離巢、都市綠地

**Keywords :** Taiwan Barbet, food provision rate, fledge, urban green space

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## 前 言

都市化(urbanization)快速改變環境的地貌是眾所周知的事實(McDonnell and Pickett 1990),並且都市住宅密集對野生動物已產生負面影響(Peterson *et al.* 2007)。都市化除了影響鳥類群聚、數量及多樣性之外(Marzluff 2001),就個體層次而言,也影響其體型、身體狀況以及繁殖表現。雖然都市化對鳥類個體有正面或負面影響的研究結果並不一致,例如捕食壓力一般認為會下降,但在部分都市地區卻

發現仍會面臨不同於野外的掠食者,如家貓(*Felis catus*)等(Lepczyk *et al.* 2003; Thorington and Bowman 2003; Beckerman *et al.* 2007);天然食物資源可能較缺乏,但人為提供的食物卻也補償都市鳥類所需(Marzluff *et al.* 2001),然而已有一些報告明確指出都市化對鳥類繁殖表現產生的影響,例如使產卵日提早(Crick *et al.* 2002)、繁殖成功率下降(Schnack 1991)、窩卵數較少或幼鳥體重較輕(Newhouse *et al.* 2008; Chamberlain *et al.* 2009)等。影響都市鳥類繁殖的可能因素包括噪音、空氣或毒物污